

**Course/Subject: Core Connections 2****Grade Level: 7****Textbook(s) / Instructional Materials Used: Core Connections 2 with Toolkit and eBook****Month(s): August - September****Unit 1****The Number System**

<u>Big Idea</u>	<u>Standard</u>	<u>Eligible Content</u>	<u>Essential Questions &amp; Lesson Essential Question</u>	<u>Concepts</u>	<u>Vocabulary</u>	<u>Competencies</u>
How to solve real world and mathematical problems involving the four operations with rational numbers.	M07.A-N.1.1.1 Apply properties of operations to add and subtract rational numbers, including real-world contexts.	Mathematical Operations  Rational Numbers	How can you tell when decimals repeat?  How can I rewrite decimals as fractions and vice versa?	Students will know....  strategies for rewriting terminating and repeating decimals as fractions.	Number line  Integers  Inverse Operations	Operations with Fractions, Decimals, Integers, and Mixed Numbers  Solving Problems using order of Operations
	M07.A-N.1.1.2 Represent addition and subtraction on a horizontal or vertical number line.	Mathematical Properties  Order of Operations  Using Number Line to model operations	How can I represent addition, subtraction and multiplication on a number line?  What is a shorter way to represent repeated addition?  How can I add and multiply integers, fractions, decimals, and mixed numbers?	how to compose and decompose numbers in multiple ways.  addition and subtraction of Integers as well as multiplication as repeated addition.	Additive Inverse Property  Associative property of addition and multiplication	Using Number Line to model Addition and Subtraction of rational numbers
	M07.A-N.1.1.3 Apply properties of operations to multiply and divide rational numbers, including real-world contexts; demonstrate that	Rounding	How can I represent addition and multiplication of integers, fractions, decimals, and mixed numbers on a number line?  What mathematical property is being used?	how to use the standard algorithm for multiplying	Commutative Property of addition and multiplication  Addition property of equality  Additive identity	Rounding decimals to the nearest tenth, hundredth, thousandths  Express a Rational Number in decimal form.  Identifying

	<p>the decimal form of a rational number terminates or eventually repeats.</p>			<p>fractions and use generic rectangles to multiply mixed numbers.</p> <p>the concept of opposites or zero pairs in context</p> <p>determine whether a fraction can be rewritten as a repeating or terminating decimal.</p> <p>build (compose) and take apart (decompose) numbers and lengths.</p> <p>add and multiply positive and negative integers and rational numbers.</p> <p>identify numerous mathematical properties</p>	<p>property</p> <p>Complex Fraction</p> <p>Terminating and Repeating decimals</p> <p>Division Property of Equality</p> <p>Multiplication Property of Equality</p> <p>Multiplicative Identity Property</p> <p>Rational Numbers</p> <p>Zero Property of Multiplication</p> <p>Subtraction Property of Equality</p>	<p>mathematical properties</p>
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<p>Month(s): September - November</p>	<p>Unit 2</p>
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**Probability and Statistics**

<b><u>Big Idea</u></b>	<b><u>Standard</u></b>	<b><u>Eligible Content</u></b>	<b><u>Essential Questions &amp; Lesson Essential Question</u></b>	<b><u>Concepts</u></b>	<b><u>Vocabulary</u></b>	<b><u>Competencies</u></b>
<p>How do you determine if a sample is Random?</p> <p>How do you use statistical measures to compare two numerical data distributions?</p> <p>How can you predict the likelihood of an outcome?</p>	<p>M07.D-S.1.1.1 Determine whether a sample is a random sample given a real-world situation.</p> <p>M07.D-S.1.1.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.</p> <p>M07.D-S.2.1.1 Compare two numerical data distributions using measures of center and variability.</p> <p>M07.D-S.3.1.1 Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (i.e., a probability near 0 indicates an unlikely event, a</p>	<p>Simple Probability</p> <p>Compound Probability</p> <p>Statistical Analysis</p> <p>Samples</p> <p>Outcomes</p> <p>Experimental and Theoretical Probability</p> <p>Survey</p>	<p>What is the probability of an event happening or not happening?</p> <p>How can I use probability to make predictions?</p> <p>What happens when the sample space is modified?</p> <p>How can I calculate the probability if there are multiple outcomes?</p> <p>How can the probabilities of multiple events be combined?</p> <p>What is the difference between experimental and theoretical probability?</p> <p>How can I apply my knowledge of fractions to represent and calculate the probabilities of a variety of events?</p> <p>How can I calculate the probability of dependent and independent events by creating an organized list?</p> <p>How can I create a probability table to represent two events with multiple possibilities?</p> <p>How can I create a probability tree to represent multiple events with multiple</p>	<p>Students will know...</p> <p>how to find out how likely it is that a specific event will occur.</p> <p>calculate the probabilities of two separate events to decide which is more likely to happen.</p> <p>how to find both experimental and theoretical probabilities of events.</p> <p>probability is a fraction of the outcomes in a sample space and that the probability of an event is always between 0 and 1</p> <p>the difference between experimental and theoretical probability</p>	<p>Biased Sample</p> <p>Complement</p> <p>Compound Event</p> <p>Dependent Event</p> <p>Experimental Probability</p> <p>First Quartile</p> <p>Independent Event</p> <p>Inference</p> <p>Interquartile Range</p> <p>Mean</p> <p>Mean Absolute Deviation</p> <p>Measure of Center</p> <p>Measure of Variability</p> <p>Median</p> <p>Population</p>	<p>Creating a Random Sample</p> <p>Estimating a solution</p> <p>Predicting an outcome</p> <p>Comparing data from 2 different distributions.</p> <p>Determine probability of Dependent Events</p> <p>Determine Probability of Independent Events</p> <p>Creating Probability Trees, Organized Lists, and Tables.</p> <p>Creating and Interpreting Box Plots.</p> <p>Determining a population.</p>

	<p>probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event).</p> <p>M07.D-S.3.2.1 Determine the probability of a chance event given relative frequency. Predict the approximate relative frequency given the probability.</p> <p>M07.D-S.3.2.2 Find the probability of a simple event, including the probability of a simple event not occurring. Example: What is the probability of not rolling a 1 on a number cube?</p> <p>M07.D-S.3.2.3 Find probabilities of independent compound events</p>		<p>possibilities?</p> <p>How can I accurately compare two distributions of data?</p> <p>How can I find a good representative sample to conduct a fair survey?</p> <p>How can I use data from a random sample to draw inferences about a population?</p>	<p>to find probabilities of compound independent events and will determine whether pairs of events are dependent or independent.</p> <p>how to use probability tables to generate a complete list of possible outcomes of compound events and to calculate probabilities.</p> <p>how to create systematic lists and probability tables and will learn to use probability trees to model outcomes for compound events.</p> <p>how to compare two sets of data by creating histograms and box plots to analyze center, shape, spread,</p>	<p>Possible Outcomes</p> <p>Probability</p> <p>Probability Model</p> <p>Quartile</p> <p>Random Sample</p> <p>Range</p> <p>Representative Sample</p> <p>Sample</p> <p>Sample Space</p> <p>Simple Event</p> <p>Simulation</p> <p>Theoretical Probability</p> <p>Third Quartile</p> <p>Tree Diagram</p> <p>Variation</p>	
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	using organized lists, tables, tree diagrams, and simulation.			and outliers.  how to compare two populations based on making inferences from samples quantifying the difference between the medians as a multiple of the IQR.  how to analyze methods of sampling and critique how well a sample represents a certain population.		
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<b>Month(s): November - January</b>	<b>Unit 3</b>
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**Expressions and Equations**

<b><u>Big Idea</u></b>	<b><u>Standard</u></b>	<b><u>Eligible Content</u></b>	<b><u>Essential Questions &amp; Lesson Essential Question</u></b>	<b><u>Concepts</u></b>	<b><u>Vocabulary</u></b>	<b><u>Competencies</u></b>
How do you represent expressions in equivalent forms?  How do you solve real world problems using numerical and	M07.B-E.1.1.1 Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients.	Expressions  Equations  Inequalities  Simple Interest	What are like terms and how can I combine them?  How can I use the distributive property to simplify algebraic expressions?  What are the strategies used to simplify algebraic	Students will know...  how to simplify algebraic expressions by combining like terms and using the Distributive	Additive Inverse Property  Algebraic Equation  Algebraic Expression	Evaluating Expressions  Solving Equations  Solving Inequalities  Using the

<p>algebraic expressions?</p> <p>How do you solve real world problems using equations and inequalities?</p> <p>How do you use variables to represent quantities in a real world or mathematical problem?</p> <p>How do you construct simple equations and inequalities to solve problems?</p> <p>How do you determine if your solution is reasonable for the problem?</p>	<p>M07.B-E.2.1.1 Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate.</p> <p>M07.B-E.2.2.1 Solve word problems leading to equations of the form <math>px + q = r</math> and <math>p(x + q) = r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers.</p> <p>M07.B-E.2.2.2 Solve word problems leading to inequalities of the form <math>px + q &gt; r</math> or <math>px + q &lt; r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers, and graph the solution set of the inequality.</p> <p>M07.B-E.2.3.1 Determine the reasonableness of answer(s) or interpret the solution(s) in the</p>		<p>expressions?</p> <p>How can I use the simple interest formula?</p> <p>How can I represent the solutions to an inequality?</p> <p>How can I solve one variable inequalities?</p> <p>How can I simplify and solve the equation for <math>x</math>?</p> <p>How do I know my solution is correct?</p> <p>How can I set-up and solve equations from word problems?</p> <p>Is there always a solution when solving an equation?</p> <p>How can I apply properties of operations to accurately compare two expressions?</p> <p>How can I solve inequalities and represent its solutions on a number line?</p> <p>How can I solve equations and check to make sure my answer is correct?</p>	<p>Property.</p> <p>rewrite expressions by combining like terms and using the Distributive Property.</p> <p>simplify and compare two algebraic expressions to determine which of them is greater.</p> <p>how to find and represent solutions to one-variable inequalities on number line graphs and record their steps.</p> <p>how to solve one-variable inequalities and will express solutions using words, graphs and symbols.</p> <p>how to check solutions while developing their understanding of solving equations and</p>	<p>Coefficient</p> <p>Commission</p> <p>Distribution</p> <p>Distributive Property of Multiplication</p> <p>Expanding</p> <p>Factoring</p> <p>Greatest Common Factor</p> <p>Inequality</p> <p>Interest</p> <p>Inverse operations</p> <p>Like Terms</p> <p>Linear Expression</p> <p>Multiplicative Inverse</p> <p>Multiplicative Inverse Property</p> <p>Principal</p> <p>Simple Interest</p>	<p>Distributive Property</p> <p>Factoring Expressions</p> <p>Combining Like Terms</p> <p>Solving Simple Interest Problems</p>
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	context of the problem.			<p>the Distributive Property.</p> <p>how to solve equations that have infinite solutions and those with no solutions.</p> <p>write and solve algebraic inequalities. solve for a variable when two expressions are equal.</p> <p>write and solve an equation to solve a word problem. recognize when an equation has no solution or infinite solutions.</p>	<p>Solution Set</p> <p>Term</p> <p>Variable</p>	
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Month(s): January - March	Unit 4
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**Proportions and Percents**

<u>Big Idea</u>	<u>Standard</u>	<u>Eligible Content</u>	<u>Essential Questions &amp; Lesson Essential Question</u>	<u>Concepts</u>	<u>Vocabulary</u>	<u>Competencies</u>
How do you analyze proportional relationships?	M07.A-R.1.1.1 Compute unit rates associated with ratios of fractions,	Proportions  Similar Figures	How can I determine if the shapes are similar?  How can I use a scale drawing to find missing dimensions?	Students will know...  how to identify corresponding	Constant of Proportionality (k)  Cross Multiply	Determining if relationships are proportional.  Use the constant

<p>How do you recognize proportional relationships?</p> <p>How do you represent proportional relationships?</p> <p>How do you use proportional relationships to solve real-world problems?</p>	<p>including ratios of lengths, areas, and other quantities measured in like or different units.</p> <p>M07.A-R.1.1.2 Determine whether two quantities are proportionally related (e.g., by testing for equivalent ratios in a table, graphing on a coordinate plane and observing whether the graph is a straight line through the origin).</p> <p>M07.A-R.1.1.3 Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p>M07.A-R.1.1.4 Represent proportional</p>	<p>Constant of Proportionality</p> <p>Unit Rate</p> <p>Scale Drawings</p> <p>Percents</p> <p>Percent increase and decrease</p>	<p>How does a proportional relationship grow?</p> <p>What does the graph and table of a proportional relationship look like?</p> <p>How can I calculate the constant of proportionality/unit rate and how it is related to the graph and rule?</p> <p>What are the connections between the table, graph, rule, and constant of proportionality of a proportional relationship?</p> <p>How can I use scale drawings to find missing side lengths and areas of shapes?</p> <p>How can I calculate the percent increase or decrease?</p> <p>How can I find the equation of the proportional relationship?</p> <p>How can I find the missing value in a proportional relationship?</p> <p>How can I scale quantities to analyze and describe their relationship?</p>	<p>sides of similar figures and compare their ratios.</p> <p>how to solve problems involving scale drawings of geometric figures.</p> <p>how to create scale drawings and compute actual lengths and areas from scale drawings.</p> <p>the difference between proportional relationships and other linear relationships.</p> <p>how to create tables, graph proportional relationships, and identify proportional relationships in them.</p> <p>how to calculate unit rates and use them to solve word problems involving</p>	<p>Percent</p> <p>Percent Change</p> <p>Percent Decrease</p> <p>Percent Error</p> <p>Percent Increase</p> <p>Rate</p> <p>Ratio</p> <p>Scale</p> <p>Scale Drawing</p> <p>Scale Factor</p> <p>Unit Rate</p>	<p>of proportionality to find the missing side of similar figures.</p> <p>Determine the unit rate from a graph or table.</p> <p>Determine the constant of proportionality from a graph, table, or rule.</p> <p>Generate a scale model using constant of proportionality.</p> <p>Find the percent of change in a real world situation.</p>
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	<p>relationships by equations.</p> <p>M07.A-R.1.1.5 Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math>, where <math>r</math> is the unit rate.</p> <p>M07.A-R.1.1.6 Use proportional relationships to solve multi-step ratio and percent problems.</p> <p>M07.C-G.1.1.1 Solve problems involving scale drawings of geometric figures, including finding length and area.</p>			<p>proportional relationships.</p> <p>how to find missing parts of similar figures. identify proportional relationships in tables, graphs, and equations. calculate unit rates.</p> <p>how to make tables, graphs, and rules relating distance to time for objects traveling at a constant rate.</p> <p>different multipliers find different related quantities that can be used to solve discount and increase problems.</p> <p>set up and solve proportional equations.</p>		
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Month(s): March - April	Unit 5
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**Geometry**

<b><u>Big Idea</u></b>	<b><u>Standard</u></b>	<b><u>Eligible Content</u></b>	<b><u>Essential Questions &amp; Lesson Essential Question</u></b>	<b><u>Concepts</u></b>	<b><u>Vocabulary</u></b>	<b><u>Competencies</u></b>
<p>What are the properties of geometric figures?</p> <p>What are the relationships between different angles in a figure?</p> <p>How do I find the circumference and area of a circle?</p> <p>How do you find the surface area and volume of a 3 dimensional figure?</p>	<p>M07.C-G.1.1.2 Identify or describe the properties of all types of triangles based on angle and side measures.</p> <p>M07.C-G.1.1.3 Use and apply the triangle inequality theorem.</p> <p>M07.C-G.1.1.4 Describe the two-dimensional figures that result from slicing 3 dimensional figures.</p> <p>M07.C-G.2.1.1 Identify and use properties of supplementary, complementary, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p> <p>M07.C-G.2.1.2 Identify and use</p>	<p>Circles</p> <p>Composite Shapes</p> <p>Angles</p> <p>Parallel Lines and Transversals</p> <p>Cross Sections</p> <p>Volume</p> <p>Surface Area</p> <p>Properties of Triangles</p>	<p>How can I find the area of a composite figure?</p> <p>What is a cross section?</p> <p>How can I classify and identify angle relationships?</p> <p>What is the relationship between the angles formed by parallel lines cut by a transversal?</p> <p>Will these three angles or side lengths make a triangle?</p> <p>How can I describe the properties of all types of triangles and apply the triangle inequality theorem?</p> <p>How can I find the missing angle of a triangle?</p> <p>How can I calculate the circumference and area of a circle?</p> <p>How can I find the area of a complex shape?</p> <p>How can I calculate the surface area and volume of a 3-D shape?</p> <p>What shape is formed when I slice a 3-D shape?</p>	<p>Students will know...</p> <p>how to classify angles and angle pairs and also use angle pair properties to write and solve simple equations.</p> <p>how to construct triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.</p> <p>identify angles by their characteristics and use correct vocabulary to describe and name them.</p> <p>construct triangles with given side lengths and/or</p>	<p>Adjacent Angles</p> <p>Alternate Exterior Angles</p> <p>Alternate Interior Angles</p> <p>Area</p> <p>Center</p> <p>Circumference</p> <p>Complementary Angles</p> <p>Composite Figure</p> <p>Corresponding Angles</p> <p>Cross Section</p> <p>Diameter</p> <p>Interior Angle</p> <p>Lateral Surface Area</p> <p>Net</p> <p>Parallel Lines</p> <p>Pi</p>	<p>Determine area and circumference of a circle.</p> <p>Determine area and perimeter of composite shapes.</p> <p>Use angle relationships created by parallel lines and transversals.</p> <p>Determine the cross section of a 3 dimensional figure.</p> <p>Find the volume and surface area of a 3 dimensional figure.</p> <p>Use the triangle angle sum theorem.</p> <p>Use the triangle inequality theorem.</p>

	<p>properties of angles formed when two parallel lines are cut by a transversal (e.g., angles may include alternate interior, alternate exterior, vertical, corresponding).</p> <p>M07.C-G.2.2.1 Find the area and circumference of a circle. Solve problems involving area and circumference of a circle(s). Formulas will be provided.</p> <p>M07.C-G.2.2.2 Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes,</p>		<p>How can I calculate the circumference, area, volume, and surface area of both 2D and 3D shapes?</p> <p>What 2D shape results from slicing 3-D figures?</p>	<p>angles and predict if they will be unique shapes.</p> <p>find the missing angle in a triangle, given two other angles.</p> <p>how to graph the relationship between circumference and diameter of circles and estimate the ratio of <math>\frac{C}{d}</math>.</p> <p>how to find the area of a circle using the formula <math>A = \pi r^2</math></p> <p>how to calculate areas composed of rectangles, triangles, and circles.</p> <p>how to find the surface area and volume of rectangular prisms and pyramids and investigate the</p>	<p>Radius</p> <p>Same-side Interior Angles</p> <p>Supplementary Angles</p> <p>Surface Area</p> <p>Transversal</p> <p>Triangle</p> <p>Triangle Angle Sum Theorem</p> <p>Triangle Inequality Theorem</p> <p>Vertical Angles</p> <p>Volume</p>	
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	and right prisms. Formulas will be provided.			relationship between surface area and volume.  how to describe the two-dimensional shapes that result from slicing three-dimensional figures.  how to find the volume of a prism by decomposing it into equal 1-unit-high layers.  how to calculate the volume of non-rectangular prisms.		
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